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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/506,306

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Robert Lloyd

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EXAMINER

WEISS, PAMELA HL

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/506,306	Applicant(s) LLOYD, ROBERT	
	Examiner PAMELA WEISS	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 2,3 and 12-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4-11 and 17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Barnebey (US 1,537,286).

Regarding Claim 1

Barnebey discloses a process for reducing the amount of sulfur-containing impurities in carbonaceous materials, comprising-

(a) contacting the materials (P1 C1 L28-32 wherein vegetable matter is charred thus constituting the carbonaceous materials) with an aqueous solution of hydrofluorosilicic acid (P1 C1 L30-35 wherein the carbonized material is treated with concentrated fluosilicic acid and P1 C2 L33-38 wherein the aqueous fluorosilicic acid, $\text{H}_2\text{SiO}_3 \cdot \text{XH}_2\text{O}$ is reused) in the absence of hydrogen fluoride (while other acids may also be present, such as HCl or sulfuric acid, HF is not present P1 C1 L33-35) and (b) separating the reaction products from said the carbonaceous materials. (P2 C1 L44-50 wherein after the reaction is complete the carbon is washed and the silicic acid is filtered out)

Barnebey discloses that during the reaction sulfates are dissolved in the acid solution (P1 C1 L40-45) thus meeting the claim limitation under conditions wherein at

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least some of the sulfur- containing impurities react with said the hydrofluorosilicic acid to form reaction products.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnebey (US 1,537,286) as applied to claim1 above, and further in view of Lloyd et al. (US 4,780,112).

Regarding Claims 4 and 5:

Barnebey discloses the process wherein the fluorosilic acid is in a concentration of 40% solution present 3x wt. of the carbon (P2 C1 L33-39). The position is taken that this amount of fluorosilic acid relative to carbon falls within the range of is in the range of a concentration of 27% to 37% (w/v or w/w or v/w) or in the range of 28% to 36% (w/v or w/w or v/w) per claims 4 and 5. .

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In any event, Barnebey does not expressly disclose the process wherein the concentration of hydrofluorosilicic acid in the step (a) is in the range of 27% to 37% (w/v or w/w or v/w) or in the range of 28% to 36% (w/v or w/w or v/w);

Lloyd et al. discloses a process for removing ash from carbonaceous materials utilizing a combination acids one of which is H_2SiF_6 . The acid combination disclosed by Lloyd et al do not chemically combine, but act independently. (C3 L10-15) Lloyd et al. discloses that an appropriate amount of H_2SiF_6 is 34%w/w falling within the claimed ranges.

It would have been obvious to a person having ordinary skill in the art at the time of invention to use the amount of H_2SiF_6 taught by Lloyd in the process of Barnebey as it is an effective amount for use in combination with other acids and will result in a reduced ash carbonaceous material.

Regarding Claims 6 and 7:

Barnebey discloses the limitations set forth above. Barnebey also discloses the carbonized materials treated with the H_2SiF_6 is heated (P1 C1 L35-40).

Barnebey does not expressly disclose the temperature of the process of step (a) to be in the range of 28 to 75°C or in the range of 30 to 70 °C.

Lloyd et al. discloses the process wherein the carbon material is treated with the acid solution of H_2SiF_6 to remove ash at a temperature of 70 °C.

It would have been obvious to a person having ordinary skill in the art at the time of invention to treat the carbonaceous materials with H_2SiF_6 at a temperature of 70 °C in

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the process of Barnebey in order to reduce the ash content of the carbonaceous materials.

Regarding Claims 8 and 9:

Barnebey discloses the limitations set forth above.

Barnebey does not expressly disclose the reaction time of step (a) is in the range of 8 to 120 minutes or the range of 10 to 100 minutes.

Regarding Claim 10:

Barneby discloses the limitations set forth above. Barneby also discloses the carbonaceous materials are mixed with three times its weight of the fluosilicic acid solution. (P2 C1 L30-35 thus meeting the claim limitation of step (a) the carbonaceous materials are mixed with at least about twice their weight of the aqueous hydrofluorosilicic acid.)

Regarding Claim 11:

Barnebey discloses the limitations set forth above. Barnebey does not disclose the repeated step of retreating the separated carbonaceous materials with further H_2SiF_6 .

Lloyd discloses the process wherein after step (b) treating the separated carbonaceous materials with further aqueous hydrofluorosilicic acid to remove residual metal fluorosilicates (C3 L46-54)

It would have been obvious to a person having ordinary skill in the art at the time of invention to add the step disclosed by Lloyd to retreat the separated carbonaceous

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materials with further aqueous H_2SiF_6 in the process of Barnebey to remove the residual metal fluorosilicates from the product of Barnebey.

Regarding Claim 17:

Barnabey discloses the process comprising after step (b): washing said the separated carbonaceous material with aqueous H_2SiF_6 (P1 C1 L43-46 wherein the carbon is filtered and soluble salts washed out), and heating said washed carbonaceous material at a temperature in the range of about 250°C to about 400°C (wherein the carbon is heated to a temperature between 400°C and 700°C thus overlapping the claimed rang) to evaporate any residual hydrofluorosilicic acid remaining on the carbonaceous material.(P1 C1 L45-50 reheat dried carbon to improve product) See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);"

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAMELA WEISS whose telephone number is (571)270-7057. The examiner can normally be reached on Mon.-Thur. 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PW

/Glenn A Caldarola/
Acting SPE of Art Unit 1797